7/047/007

Chevron Chemical Company
A Branch of **Chevron U.S.A., Inc.**
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Manila Star Route, Vernal, UT 84078

November 14, 1990

Mr. Holland Shepherd
Reclamation Specialist
Department of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Dear Mr. Shepherd;

I'm sorry to have missed your visit in August. I did receive your letter of August 31 and had a lengthy discussion with Mary Lozano pertaining to your questions. I apologize for the delay in writing this letter, but I wanted to include the survey of the existing plants currently growing at the tailings area.

The questions in your letter are answered as follows:

1. What physical and chemical properties characterize the tailings material?

   In addition to Attachment A, the tailings material contains Phosphates, Magnesium, Non-Aluminum Silica, Dolomite, Gypsum and Fluorides.

2. What time frames might be required for deterring (watering) the tailings?

   Based on average weather conditions, the tailings area would be able to be planted in approximately 18 months. It is believed that the very worst scenario would be five years.

3. What physical constraints exist for deterring the tailings?

   None.

4. What is the load-bearing capacity of the tailings at various locations within the pond perimeter?

   The load bearing capacity depends on the moisture in the tailings. We routinely push the dry tailings sand into the pond with a D10 Caterpillar.

5. What steps might need to be taken to increase the load bearing capacity of the tailings?

   Allow the moisture to evaporate.

6. What amendments might be needed to initiate plant growth on the tailings?

   Possibly soil enrichment.

7. What species might be best adapted to the tailings?

   Please see Attachment B for species currently growing in the tailings area.

8. What type of reclamation might be necessary in light of the Division of Environmental Health's new Groundwater Discharge Permit requirements?

   It appears no additional types of reclamation will be required under the new Groundwater Discharge Standards.

With regards to test plots of plants on the tailings sand, we planted approximately two acres with the approved seed mix this summer. With the drought conditions we experienced this year, we have seen little or no reproduction. Reseeding is scheduled next spring.

If you should have any questions, or if I can be of further assistance, please feel free to contact me at the above address or phone number.

Sincerely,

John E. Laursen
Security/Environmental Specialist

cc: M. J. Lozano

Client : Chevron Resources
Address : Manila Star Route
Vernal, Utah 84078
Attn. : Ms. Mary J. Lozano
P.O. No.: S 003613
Sample ID: Tailings Pond By Barge
Sample Date Time: 06/29/89 10:20

Lab No. : 89-WI/04001
Date Received: 06/30/89

Parameters

Boron, dissolved	.18	mg/l
BOD (5 day)	-1.	mg/l
Chloride	10.	mg/l
Carbon, total organic	3	mg/l
Nitrogen, ammonia	.27	mg/l
Nitrate as N, dissolved	.85	mg/l
Nitrate/Nitrite as N	.90	mg/l
Nitrite as N, dissolved	.05	mg/l
Nitrogen, organic	.6	mg/l
Nitrogen, total Kjeldahl	.9	mg/l
Oil and Grease	1.	mg/l
pH (lab)	7.2	units
Phosphorus, dissolved	.328	mg/l
Phenols, total	.01	mg/l
Solids, total dissolved	2014.	mg/l
Turbidity	4.1	ntu
Cadmium, dissolved	-.005	mg/l
Chromium, dissolved	-.01	mg/l
Copper, dissolved	-.01	mg/l
Cyanide, total	-.002	mg/l
Iron, dissolved	.05	mg/l
Lead, dissolved	-.02	mg/l
Mercury, dissolved	-.0001	mg/l
Selenium, dissolved	.005	mg/l
Silver, dissolved	-.01	mg/l
Zinc, dissolved	-.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

Ralph V. Poulsen, Laboratory Director

Ralph V. Poulsen/S.H.

Attachment "B"

The following is a list of plants surveyed at the Vernal Phosphate Operation Tailings pond. The survey was conducted by Jean Nitshke-Sinclear, Range Conservationist, Vernal District of the Bureau of Land Management and John E. Laursen, Environmental/Security Specialist, Vernal Phosphate Operation on October 25, 1990.

Common Name	Genus	Species If Known
Alfalfa	Medicago	Sativa
Meadow Aster	Astor	Canpestris
Barley	Hordeum	
Common Cattail	Typha	Latifolia
Clover	Trifolium	Melilotus Officinalis
Cockleburr	Xanthium	Strumaruim
Nuttle's Goldenweed	Haplopaus	Nettallii
Goosefoot	Chenopodium	
Indian Ricegrass	Oryzopsis	Hymenoides
Juniper	Juniperus	
Lambsquarter	Chenopodium	Album
White Rabbitbrush	Chrysothamnus	Nauseosus
Black Sagebrush	Artemisia	Nova
Sedge	Carex	
Tamarisk	Tamarix	Chinensis
Wheatgrass Thickspike	Agropyron	Dasystachym
Wild Cabbage	Caulanthus	Crassicaulis
Willows	Salix	